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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,889	07/25/2003	Gregory V. Hofer	200208326-1	3820
22879	7590	09/21/2007	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			TRAN, NHANT	
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/627,889	HOFER, GREGORY V.
	Examiner	Art Unit
	Nhan T. Tran	2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 July 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-19 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-19 and 22-24 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-19 and 2-24 have been considered but are moot in view of the new ground of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6, 9-13, 16-19, 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamasaki (US 5,627,586).

Regarding claim 16, Yamasaki discloses a digital imaging device (imaging system in Fig. 1, wherein “digital” is indicated by A/D converter 14; col. 5, lines 18-21, and it is noted that “device” is equated to a broad device containing all components/units coupled together as shown in Fig. 1), comprising:

an image sensor (an inherent image sensor of video camera 10 for capturing video images; col. 5, lines 22-30);

a lens (lens of the video camera 10) configured to focus a first view of a scene onto the image sensor (Fig. 1 and col. 13, lines 36-39);

a display (display 32) configured to display the first view of the scene (i.e., Figs. 2A-2C; col. 5, lines 36-44);

a processor (CPU 18) configured to mark an object (an object is marked by superimposing a tracking zone at a gazing point on the object shown in Figs. 2A-2C) in the displayed first view of the scene (see col. 5, lines 45-62); the display configured to display a third view (a subsequent view after the object is marked) of the scene where the object is visible (the object is visible in the camera's field of view and tracked accordingly); the processor configured to remark (updating tracking mark in step I6 in Fig. 21) the object in the displayed third view with a maker (see Figs. 2A-2C & 21 and col. 12, line 59 – col. 13, line 2);

the processor configured to perform a correlation computation (see Figs. 14 & 15 for the sub-routines VECTCAL and VECTPAT) directly between coordinates (vertical and horizontal coordinates) of the object in the first view of the scene and coordinates of the object in the third view of the scene (Figs. 10-11) to make a determination of a change in direction and/or distance (by virtue of motion vector) of the object in the third view of the scene relative to the first view of the scene (see Figs. 14, 15 & 21 and col. 8, lines 36-53 and col. 12, line 59 – col. 13, line 15);

the display configured to display a second view of the scene where the object is no longer visible (this second view of the scene is any subsequent view after the third view when the object, i.e., an airplane, completely moves out of the camera's field of view or the camera is accidentally directed to another view different from the view shown in Figs. 2A-2C). *It is importantly noted that the claim recites "comprising:" which*

is an open ended claim and the first, second and third views are not necessarily in order because the claim does not specify the second view is after the first view and before the third view. Therefore, the second view of the scene is considered as any subsequent view of the scene (after the third view) where the object is no longer visible by the camera.

Regarding claim 17, as discussed in claim 16, Yamasaki also anticipates that the object is no longer visible in the second view of the scene due to a change in the field of view of the digital imaging (the camera is accidentally directed to another view, see claim 16).

Regarding claim 18, as disused in claim 16, Yamasaki also anticipates that the object is no longer visible in the second view of the scene due to a movement of the object (the object completely moves out of the camera's field of view as mentioned in claim 16).

Regarding claim 19, Yamasaki also discloses all limitations of a digital imaging device as analyzed in claim 16 above.

Furthermore, Yamasaki discloses a control (switch SW in Fig. 1) configured to allow user to input) into the digital imaging device (col. 5, lines 45-59); a processor (CPU 18) configured to monitor the control (col. 5, lines 45-59); the processor configured to establish an initial frame of reference (basic image frame shown in Fig.

2A-2C) when detecting user input from the control; the processor configured to display a marker (tracking mark) on the display at a predetermined location with respect to the initial frame of reference (col. 7, lines 47-60 and col. 11, lines 24-27);

the processor configured to compare multiple views of the scene (multiple image frames), captured by the image sensor, to track the movement of the digital imaging device with respect to the initial frame of reference (col. 10, line 55 – col. 11, line 3, wherein the digital imaging device is moving while the object is stationary), through performance of a correlation computation directly between the coordinates (horizontal and vertical coordinates) of the predetermined location in the initial frame of reference and coordinates of the predetermined location within the field of view to make a determination of a change in direction and/or distance (by virtue of motion vector) of the digital imaging device in the field of view relative to the initial frame of reference, whereby the marker is displayed when the predetermined location is within the field of view of the digital imaging device (see Figs. 2A-2C, 12, 14 & 21; col. 10, line 55 – col. 11, line 3; col. 12, line 59 – col. 13, line 15 and col. 8, lines 36-53).

Regarding claim 22, this claim is also met by the analyses of claims 16 & 19.

Regarding claim 23, Yamasaki also discloses a means for establishing an updated frame of reference (Fig. 21) through employment of recordation of coordinates of the object (by updating tracking mark in step I6) in the current field of view; wherein the means for comparing multiple fields of views comprises means for performing a

correlation computation directly between the coordinates of the object in the updated frame of reference and coordinates of the object in a subsequent field of view (by loop back to step I2 in Fig. 21 for tracking a subsequent frame) to make a determination of a change in direction and/or distance of the object in subsequent field of view (by VECTCAL in step I3) relative to the updated frame of reference (see Fig. 21; col. 12, line 59 – col. 13, line 15 and col. 8, lines 36-53).

Regarding claim 1, this claim is also met by the analysis of claim 16.

Regarding claim 2, as discussed in claims 16 & 17, it is clear that the object is no longer visible in the second view due to a change in the field of view of a device as the object between the first view of the scene and the second view of the scene.

Regarding claim 3, as discussed in claims 16 & 18, it is also clear that the object is no longer visible in the second view due to a movement of the object between the first view of the scene and the second view of the scene.

Regarding claim 4, as discussed in claim 16, the second view of scene does not contain the object (i.e., the airplane completely moves out of the camera's field of view) but may contain other object which is then marked by the user for tracking this object as a different tracking session. Thus, the disclosure of Yamasaki also anticipates that a position of a second object is marked in the second view of scene with a second marker

(i.e., tracking mark for tracking a new object other than the airplane as shown in Figs. 2A-2C), the second marker is displayed when the second object is visible in a displayed view of the scene (see col. 5, lines 32-62 and note the analysis of claim 16).

Regarding claim 6, it is also seen in Figs. 2B & 2C that the marker (tracking mark) is displayed as a set of square brackets that enclose the marked object.

Regarding claim 9, Yamasaki also discloses that the object is marked by centering the object in the display and then activating a control (see col. 5, lines 53-59 and col. 7, lines 52-55).

Regarding claim 10, Yamasaki discloses a method comprising:

- (a) taking a first frame of a scene (i.e., a basis image frame) representing a first field of view of a digital device (Figs. 2A-2C and col. 7, lines 46-60 and note the digital device as discussed in claim 16);
- (b) taking a second frame of the scene (i.e., a subsequent image frame as a reference frame at every 1/30 second) representing a second field of view of the digital device (Figs. 2A-2C; col. 8, lines 36-53 and col. 13, lines 25-31)
- (c) comparing the first frame and the second frame and generating a first displacement value (a vector value) representative of a difference between the first frame and the second frame (Figs. 14, 15, 21 and col. 8, line 36 – col. 10, line 21 and col. 13, lines 25-31);

(d) processing data based on the first displacement value to determine the relative change between the first field of view and the second field of view (col. 8, line 36 – col. 10, line 21; col. 12, line 59 – col. 13, line 31);

(e) displaying the first field of view of the scene (Fig. 2A-2C);

(f) marking an object displayed in the first field of view of digital device for the first frame of the scene with a marker (Figs. 2A-2C and col. 5, lines 49-62);

(g) displaying the second field of view of the digital device for the second frame of the scene (col. 12, line 59 – col. 13, line 15);

(h) tracking the position of the object relative to the first field of view and marking the object with a marker, in the display, when the object is visible in the second field of view (Figs. 2A-2C); wherein the (h) tracking the position of the object comprises performing a correlation computation directly between coordinates (horizontal and vertical coordinates) of the object in the first field of view and coordinates of the object in the second field of view when the object is visible in the second field of view, to make a determination of a change in direction and/or distance of the object in the second field of view relative to the first field of view (see col. 8, line 36 – col. 10, line 21 and col. 12, line 59 – col. 13, line 32).

Regarding claim 11, this claim is also met by the analysis of claim 10 by repeating the steps in claim 10 for tracking the object in another subsequent frame (so called a current frame at this instant time) from a previous frame as long as the object is still visible by the imaging device.

Regarding claim 12, see the analyses of claims 10 & 11 for repeating the steps so that the object is continuously tracked over hundred frames or thousand frames as long as the object is still visible by the imaging device.

Regarding claim 13, this claim is also met by the analysis of claim 6.

Regarding claim 24, as the object tracking is continued from frame to frame through a plurality of frames as long as the object is still visible as discussed in claims 16, 19, 22 & 23 above, Yamasaki also anticipates displaying a fourth view of the scene (a subsequent image frame) where the object is visible; remarking (updating tracking mark as in Fig. 21) the displayed object with the marker in the fourth view; performing a correlation computation directly between the coordinates of the object in the third view of the scene and coordinates of the object in the fourth view of the scene to make a determination of a change in direction and/or distance of the object in the fourth view of the scene relative to the third view of the scene (see Fig. 21 and col. 12, line 59 – col. 13, line 15 and col. 8, lines 36-53, wherein the tracking is repeated through a plurality of frames as long as the object is still visible).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5, 7, 8, 14 & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki (US 5,627,586) in view of Kaneda (US 5,739,857).

Regarding claim 5, although Yamasaki teaches that the object tracking method is used in the digital imaging system having the video camera (10) as discussed in claim 16, Yamasaki does not fairly disclose that the method is used in a digital camera.

However, in the same field of endeavor, Kaneda teaches a stand-alone digital camera (Fig. 1) implemented with an object tracking method for tracking the object and displaying the tracked object in the camera's viewfinder (23) (see Kaneda, col. 1, lines 10-15, 45- 67; col. 9, lines 22-35 and col. 5, lines 8-10).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Yamasaki and Kaneda by integrating all components in Yamasaki and the object tracking method in a stand-alone digital camera so as to provide a compact and convenient digital device.

Regarding claim 7, Yamasaki in view of Kaneda as discussed in claim 5 discloses that the scene is displayed on a viewfinder in a camera (see monitor 23 in the digital camera of Kaneda).

Regarding claim 8, Yamasaki in view of Kaneda as discussed in claim 5 teaches a display as the camera's viewfinder (23) but are silent as to the display is on the back of the camera. However, an Official Notice is taken that it is old and well known in the art that a camera's viewfinder can be provided on the back of the camera. Therefore, it would have been obvious to one of ordinary skill in the art to provide the display on the back of the camera so as to allow the user easily view images because the user often stands behind the camera.

Regarding claims 14 & 15, these claims are also met by the analyses of claims 7 & 8, respectively.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

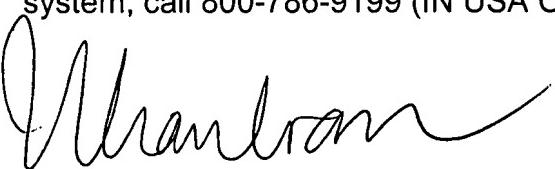
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (571) 272-7371. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



NHAN T. TRAN
Patent Examiner